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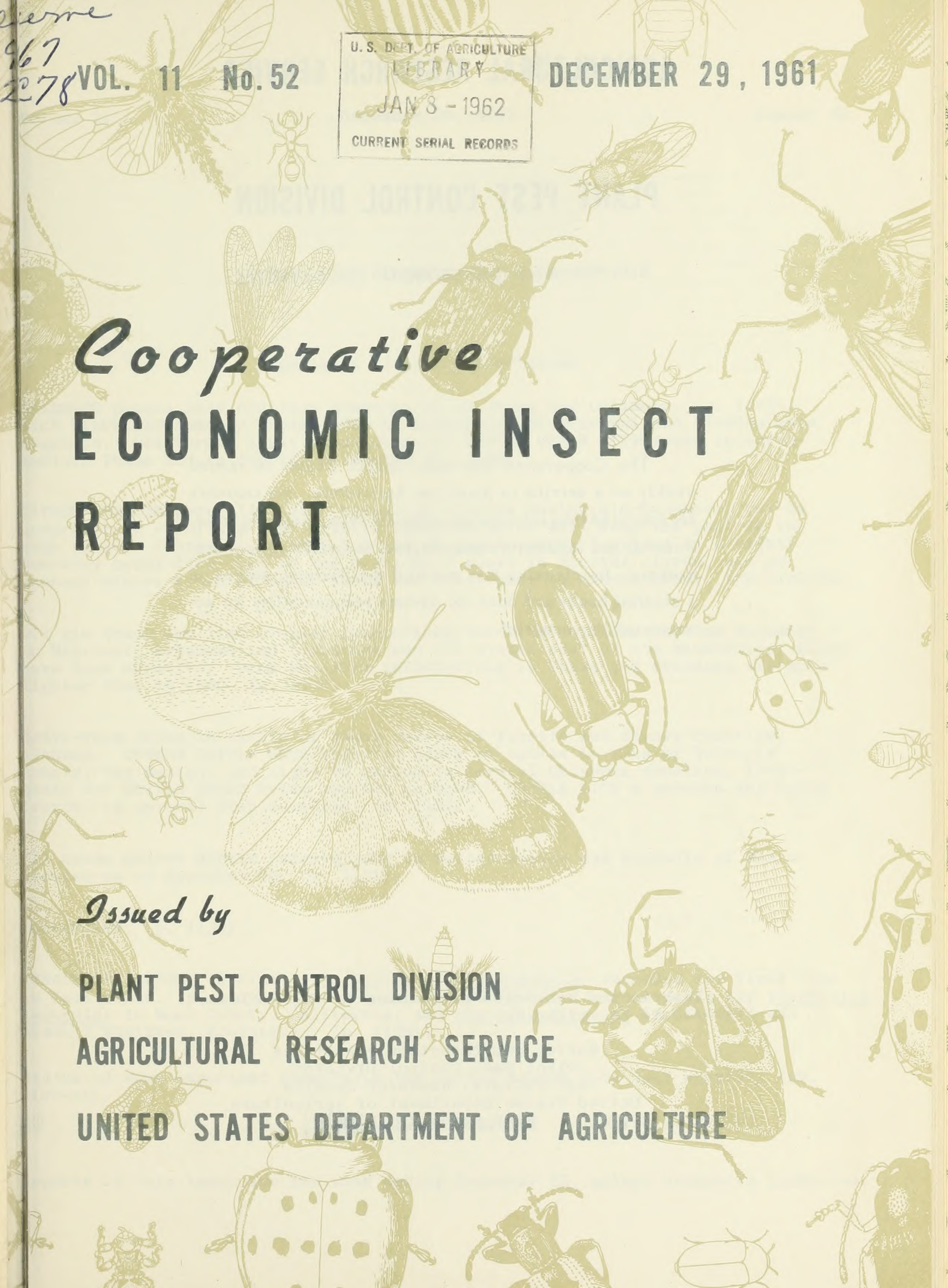

VOL. 11 No. 52 DECEMBER 29, 1961

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Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 11 December 29, 1961 Number 52

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG populations continue noneconomic in Texas and Oklahoma. (p. 1128). RICE DELPHACID surveys during 1961 in Louisiana, Mississippi and Florida were negative. Scattered, light populations of WINTER GRAIN MITE found in northeastern Texas and in central Oklahoma. (p. 1129).

CITRUS INSECTS generally below normal in Florida during mid-December, but an upward trend of CITRUS RUST MITE is expected, which will keep the pest in the high range. Increases in PURPLE SCALE during November resulted in a higher December population than in the previous 3 years in Florida citrus, and an unusual winter brood of BLACK SCALE was developing in mid-December. (pp.1130-31).

All gin trash and lint cleaner inspections for PINK BOLLWORM through November in Missouri, Arkansas and Louisiana and all states east of the Mississippi River have been negative. Pink bollworm infestations in Texas and Oklahoma are much lighter than in 1960. (p. 1130).

SCREW-WORM found in navels of young calves in Fayette and Elmore Counties, Alabama. COMMON CATTLE GRUB reported heavy on cattle in area of Valencia County, New Mexico, and light to medium in several Oklahoma counties. Treatments for CATTLE GRUBS being applied in Utah. CATTLE LICE a problem and being treated in several Utah counties. (p. 1131).

All known KHAPRA BEETLE infestations in United States and Republic of Mexico treated as of November 30. (p. 1131).

CORRECTION (p. 1132).

INSECT DETECTION: A fruit fly (Paroxyna pallidipennis) recorded for first time in California. (p. 1132). New county records reported were a fruit fly (Tephritis labecula) in Mono County, California, and imported fire ant in Caldwell and Lincoln Parishes, Louisiana. (p. 1132).

Status of some important insects in the United States (pea leaf weevil). (pp. 1133-35).

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Reports in this issue are for week ending December 22, unless otherwise indicated.

WEATHER OF THE WEEK ENDING DECEMBER 25

This week was generally 5° to 15° warmer than last week in the midcontinent area and Far West, where temperatures were rising most of the week. The weather was extremely cold in the northern Great Plains at the beginning of the week, with below-zero minima extending southward to Kansas. Temperatures averaged near normal again in the Northeast, but were not quite as mild in the Southeast as during the previous week owing to much lower temperatures over the weekend, with general freezing to northern Florida. Colder air was spreading into southern Florida at the close of the period.

Precipitation was limited mostly to the Pacific Northwest, the east coast and Appalachian region, and the Ohio and middle Mississippi Valleys. In south central areas this was a dry week, although some streams were still above flood stage due to heavy rains of the two previous weeks.

In Florida rains were spotty. Totals were generally under 0.10 inch in the southern portion of the Peninsula, but ranged from 1.50 to 3.00 inches in the west central portion of the Peninsula, and 0.50 to 1.00 inch elsewhere in the Peninsula and northwestern portions of the State.

Rain fell over much of the Northeast at the beginning of the period, with some snow in the mountains, and heavy snow fell during the weekend. The week's main snowstorm moved from the Northwest into the Great Plains on Friday. The storm was the worst blizzard in years in parts of Iowa, but heavy, drifting snow also fell in northeastern Kansas, northern Illinois, northern Missouri, and southern Wisconsin. Lesser amounts fell over the Ohio Valley. This storm combined with another storm off the middle Atlantic coast on Sunday and brought heavy snow to much of the Northeast. This was the first major snowstorm of the season in New England where falls of 18 to 24 inches were reported by several central stations. Locally heavy falls also were reported from other sections of the Northeast, including over 12 inches at Harrisburg, Pennsylvania.

In the Far West little snow fell, and the mountain snowpack either remained the same or diminished slightly, while the snow cover disappeared from some lower elevations. Chinook winds melted the cover in the western portion of the Great Plains as far north as western South Dakota. The cover is also gone in the lower Ohio Valley, with only light amounts in northern Indiana, lower Michigan and most of Ohio. In the Northeast, the weekend storm extended the cover from New York and New England southwestward in the Appalachians to Tennessee. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

CORN INSECTS - INDIANA - A corn insect survey was conducted by D. L. Matthew and R. T. Everly from September 17 to October 20 to determine the amount of damage or loss caused by birds, European corn borer (*Ostrinia nubilalis*), corn earworm (*Heliothis zea*) and corn leaf aphid (*Rhopalosiphum maidis*) to field corn in 1961. The percentage of loss caused birds, corn earworm and corn leaf aphid is indicated in the tables below. The corn leaf aphid losses are based on the results of studies in 1959 when it was determined that the yield was highly significantly correlated with percent of plants infested. In the absence of any notable amount of barrenness, the rate of loss in corn yield is 0.27202 bushels per acre for each percent increase in infestation above 9.8 percent. For infestations of 9.8 percent and lower, yield loss is immeasurable. (Everly). The European corn borer abundance data will be published in CEIR 12 (1): 1-5-62.

CORN INSECT SURVEY IN INDIANA - 1961

Prepared by R. T. Everly

A - Crop Conditions

Area	No. of Counties	No. of Fields	Yield Estimate	Maturity	Stalk Rot	Percent Bird Damage
North-northwest	7	16	Good	Dry-mature	Scarce	0.2
North-northcentral	5	11	Good	Dry-mature	Scarce	0.5
North-northeast	6	10	Good	Dry-mature	Scarce	0.6
Northwest	6	15	Good	Dry-mature	Scarce	0.0
North Central	8	16	Good	Green stalks 1/	Very scarce	0.0
Northeast	10	19	Good	Green stalks	Scarce	0.0
Southwest	8	13	Good	Green stalks	None	0.5
South Central	7	11	Good	Green stalks	None	0.2
Southeast	9	16	Good	Green stalks	None	0.4
South-southwest	10	17	Good	Green stalks	None	0.1
South-southcentral	7	10	Good	Green stalks	None	0.1
South-southeast	9	10	Good	Plants all green	None	0.0
State	92	164	Good	Green stalks	Very scarce	0.2

1/ Green stalks with dry leaves and husks

(Tables continued on page 1128)

B - Corn Earworm

Area	No. of Counties	No. of Fields	Percent Plants Infested	No. of Damaged Kernels Per Infested Ear	No. of Kernels Per Ear	Percent Loss
North-northwest	7	16	1.8	3.6	784	0.1
North-northcentral	5	11	5.8	6.3	812	0.1
North-northeast	6	10	0.0	0.0	800	0.0
Northwest	6	15	1.9	7.5	786	0.1
North Central	8	16	1.0	3.1	735	0.0
Northeast	10	19	1.3	1.7	736	0.0
Southwest	8	13	6.2	2.4	750	0.1
South Central	7	11	2.2	2.2	652	0.1
Southeast	9	16	3.0	3.4	770	0.1
South-southwest	10	17	37.0	14.3	705	1.0
South-southcentral	7	10	28.4	18.9	730	1.2
South-southeast	9	10	34.4	17.6	770	1.2
State	92	164	10.4	6.8	750	0.3

C - Corn Leaf Aphid

Area	No. of Counties	No. of Fields	Percent Plants Infested	Increase in Number of		Percent Loss
				Nubbins	Barren	
North-northwest	7	16	3.8	0.0	0.0	0.0
North-northcentral	5	11	8.7	0.3	0.0	0.0
North-northeast	6	10	13.2	0.7	0.0	0.9
Northwest	6	15	17.3	0.5	0.2	2.0
North Central	8	16	7.8	0.3	0.0	0.0
Northeast	10	19	9.0	0.0	0.0	0.0
Southwest	8	13	42.2	1.0	0.1	8.8
South Central	7	11	24.0	0.5	0.1	3.4
Southeast	9	16	40.8	0.9	0.1	8.4
South-southwest	10	17	23.4	0.5	0.0	3.7
South-southcentral	7	10	27.6	1.3	0.1	4.8
South-southeast	9	10	24.4	1.4	0.0	4.0
State	92	164	20.2	0.6	0.1	3.0

GREENBUG (Toxoptera graminum) - TEXAS - Populations remain noneconomic over State, with no threatening infestations reported. (Newton). OKLAHOMA - Noneconomic populations found in Payne, Lincoln, Logan, Kingfisher, Blaine, Canadian and Grady Counties in central area. Same condition also exists in Muskogee County, east central area, and Jefferson County, south central area. Continued cold weather kept activity reduced. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Populations of 50-75 per linear foot present under good cover in wheat fields in Logan County. This heavy population did not exist in same field on plants which had been grazed. Lighter populations, less than 5 per linear foot, found in Kingfisher, Blaine, Canadian and Grady Counties. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - An infestation of up to 60 per linear foot noted on wheat in Jefferson County. (Okla. Coop. Sur.).

RICE DELPHACID (Sogata orizicola) - Surveys were discontinued for year in most locations because of killing frosts late in November. A total of 118,784 acres on 949 farms in LOUISIANA and 5,445 acres on 33 properties in 9 MISSISSIPPI delta counties has been surveyed this season, with negative results. In FLORIDA, negative surveys made on Rabbit Island and on a 50-acre field in Hendry County. (PPC, So. Reg; Nov. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light, noneconomic populations being found in scattered northeastern areas. (Texas Coop. Rpt.). OKLAHOMA - Scattered, light populations noted on wheat in central area. (Okla. Coop. Sur.).

FIELD CRICKETS (Gryllus spp.) - ALABAMA - Large numbers present in highland clover fields in Lee and Russell Counties; apparently driven from lowlands by recent flooding conditions which prevail. (Buttram).

PEA APHID (Macrosiphum pisi) - NEW MEXICO - Generally light infestations in alfalfa in Socorro, Valencia and Bernalillo Counties. (N. M. Coop. Rpt., Dec. 16). OKLAHOMA - Only scattered individuals found in overwintering alfalfa in central area. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Infestations very low statewide. (Ariz. Coop. Sur.).

A THRIPS (Frankliniella occidentalis) - ARIZONA - Medium populations present in some central and southwest area alfalfa. (Ariz. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Scattered populations found under wheat plants in Payne, Kingfisher, Blaine and Canadian Counties. No feeding activity noted. (Okla. Coop. Sur.).

FRUIT INSECTS

Citrus Insect Situation in Florida - Mid-December - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 60 percent of groves (norm 71.5 percent); 42 percent economic (norm 50 percent). Although this mite is now below the seasonal normal for December, an upward trend will keep the statewide population in the high range. Highest districts are Bartow, Brooksville, Gainesville and west coast. CITRUS RED MITE (Panonychus citri) infested 35 percent of groves (norm 59 percent); 10 percent economic (norm 26 percent). Population is very low in all districts and little change is expected. TEXAS CITRUS MITE (Eutetranychus banksi) infested 32 percent of groves; 8 percent economic. The current low population level will continue. FLORIDA RED SCALE (Chrysomphalus aonidum) infested 60 percent of groves (norm 59 percent); 7 percent economic (norm 11 percent). Infestations are lighter than average and will remain light except in a few scattered groves. Indian River is the highest district. PURPLE SCALE (Lepidosaphes beckii) infested 85 percent of groves; 14 percent economic. Increases during the past month have resulted in a higher December population than in the previous 3 years. However, the majority of infestations are light and parasite activity is expected to prevent buildup to destructive level in most groves. Highest districts are Brooksville, ridge and Orlando. BLACK SCALE (Saissetia oleae) infested 50 percent of groves (norm 30 percent); 20 percent with moderate to heavy infestations (norm 6 percent). An unusual winter brood is developing and young scales may be found on leaves and twigs in unprecedented numbers. Further increase is expected as long as warm weather continues. (Simanton, Thompson, Johnson (Citrus Expt. Sta., Lake Alfred)).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Chemical Control Zone: Total of 179,032 citrus trees on 1,057 properties inspected in States of Sonora and Nuevo Leon during November; 783 trees on 97 properties found infested (included in trees inspected were 112,705 nursery trees). Infestations found in Allende, Montemorelos and Linares, Nuevo Leon. Biological Control Zone: In Tamaulipas, all inspected properties showed a satisfactory degree of biological control. Parasites, especially Prospaltella opulenta, have been reported rather abundant in some groves in Tamaulipas. (PPC, Mex. Reg.; Nov. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - Trapping operations initiated in States of Sonora and Sinaloa during November; 4 traps at Municipal Airport in Hermosillo, Sonora, 19 traps along waterfront in Guaymas, Sonora, and 34 traps along waterfront and at the Municipal Airport in Mazatlan, Sinaloa. In the States of Chiapas, Sinaloa and Sonora, 1,532 traps were in service as of November 30. All trap collections were negative. (PPC, Mex. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - Trap collections in San Diego County, CALIFORNIA; Tijuana, Tecate, Ensenada and Mexicali, Baja California, and San Luis, Sonora, MEXICO; and in Rio Grande Valley of TEXAS were negative during November. Collections of other species of Anastrepha were made in Texas, however; all in the western end of the Rio Grande Valley. (PPC).

AN ORCHARD MITE (Bryobia rubrioculus) - NEW MEXICO - Eggs abundant on fruit trees in Bernalillo, Sandoval and Rio Arriba County orchards. (N M. Coop. Rpt., Dec. 16).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Medium to heavy populations continue on several central area crops. (Ariz. Coop. Sur.).

SWEETPOTATO INSECTS - ALABAMA - White-fringed beetles (Graphognathus spp.), spotted cucumber beetle (Diabrotica undecimpunctata howardi) and southern green stink bug (Nezara viridula) observed in large numbers in field of volunteer sweetpotatoes in Mobile County; many immature stages present. (Seibels).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - MISSOURI - Inspections begun in 7 southeastern counties in early October and completed November 17. Inspection of gin trash covered 3,364 bushels of trash from 38 gins, representing 24,802 bales of cotton. Lint cleaner inspections made at 30 gins covering 6,868 bales of cotton. All inspections were negative. (PPC, Cent. Reg.; Nov. Rpt.) In ARKANSAS and LOUISIANA, all inspections through November have been negative. In TEXAS and OKLAHOMA, infestations are much lighter than in 1960. All inspections east of the Mississippi River were negative. (PPC, So. Reg.; Nov. Rpt.). OKLAHOMA - Lint cleaner inspections in Bryan, Jefferson, Love and Marshall Counties positive, but counts remained low. (Okla. Coop. Sur.). CALIFORNIA - Light trap collections during November negative.(PPC, West. Reg.). MEXICO - In States of Sonora and Baja California, gin trash, lint cleaner and light trap inspections made during November, with negative results. (PPC, Mex. Reg.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - TEXAS - Continues active within uncontrolled spots in southeastern area, but new infestations declined from 29 spots on November 7 to one spot on November 29. (Texas For. Pest Comm.; Nov. Rpt.).

TURPENTINE BEETLES - TEXAS - Unspecified species infested loblolly and shortleaf pines in Walker and Montgomery Counties. (Texas For. Pest Comm.; Nov. Rpt.).

NANTUCKET PINE TIP MOTH (*Rhyacionia frustrana*) - INDIANA - Larvae in leaders of Scotch pine in Spencer County. (Schuder).

PINE TUBE MOTH (*Argyrotaenia pinatubana*) - MARYLAND - Infesting a white pine at Baltimore on December 12. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (*Callitroga hominivorax*) - ALABAMA - Found in navels of young calves in Fayette and Elmore Counties; first cases reported from these counties this year. (Buttram).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - NEW MEXICO - Cattle in Belen area, Valencia County, heavily infested; counts averaged 60-125 larvae per head in animals checked. (N. M. Coop. Rpt.). OKLAHOMA - Counts were as follows: Oklahoma County - ranged 0-119 and averaged 14 per head on heifers, and ranged 0-16 and averaged 4 per head on 32 yearling steers; Stevens County - 12 per animal; Cotton County - 8-15 on grown cows. Grub activity also noted in Choctaw, Muskogee and Texas Counties. (Okla. Coop. Sur.).

CATTLE GRUBS - UTAH - Systemic sprays applied to 3,500 cattle this fall in Sanpete County. (Knowlton, Funk). Treatments by pour-on method applied to 375 cattle in Garfield County. (Knowlton, Lindsay).

CATTLE LICE - OKLAHOMA - Some activity reported from Sequoyah, Muskogee, Choctaw and Beaver Counties; no activity noted on a limited number of animals checked in Payne and Oklahoma Counties. (Okla. Coop. Sur.). UTAH - Infestations severe on some beef herds at Logan, Newton and elsewhere in Cache County. (Haws, Knowlton). A problem in many Sanpete County herds; 3,500 cattle treated with a systemic for both lice and cattle grub control and 600 others sprayed with chlorinated hydrocarbons. (Knowlton, Funk). Numerous in some Garfield County herds, where 1,500 dipped, 800 sprayed and 375 treated by pour-on method for control. (Knowlton, Lindsay).

WINTER TICK (*Dermacentor albipictus*) - OKLAHOMA - Countywide infestations reported from Sequoyah County. (Okla. Coop. Sur.).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - Upon completion of the fumigation of an infested property at Tucson, ARIZONA, during November, there are no known infestations in the United States or in the Republic of Mexico. (PPC, Nov. 30).

INDIAN-MEAL MOTH (*Plodia interpunctella*) - TEXAS - Light to heavy populations causing widespread economic damage in feed and seed stores in Cameron County. (Texas Coop. Rpt., Day).

A TENEBRIONID (*Cynaeus angustus*) - CALIFORNIA - Light population recorded in grain in Porterville, Tulare County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - LOUISIANA - Caldwell and Lincoln Parishes reported infested for first time during November. (PPC, So.Reg.).

FRUIT FLIES - CALIFORNIA - A rare species, *Tephritis labecula*, known only from a record in Alpine County, was collected in Mono County during the summer in a sticky-carton trap placed in *Prunus emarginata*. Also collected in a sticky-carton trap hanging in *P. emarginata* was *Paroxyna pallidipennis* in Alpine County; a first record for the State. (Cal. Coop. Rpt.).

BROWN-BANDED COCKROACH (*Supella supellectilium*) - UTAH - Infesting several apartments at Logan, Cache County. (Knowlton).

MILLIPEDS - VIRGINIA - Very abundant in several homes in Richmond, Henrico County. (Willey, Dec. 14).

CLOVER MITE (*Bryobia praetiosa*) - NEW MEXICO - Entering homes in large numbers at Santa Fe, Santa Fe County, and in Farmington-Aztec area, San Juan County. (N. M. Coop. Rpt., Dec. 16).

JAPANESE BEETLE (*Popillia japonica*) - ILLINOIS - Aerial treatment program at Sheldon completed on November 11, covering 17,300 acres. MISSOURI - Soil treatment of 454 acres at Lambert-St. Louis Municipal Airport at St. Louis completed during November; additional 80 acres to be treated in spring of 1962. Treatments in downtown St. Louis started on November 27. MICHIGAN - Treatments completed on 152 acres in Lenawee County and 122 acres in Monroe County during November; 9 isolated spots in Berrien County also treated. (PPC, Cent. Reg.; Nov. Rpt.).

CORRECTION

CEIR 11(50):1110 - MARYLAND - AZALEA LEAF MINER (*Gracilaria azaleella*) should read ARBORVITAE LEAF MINER (*Argyresthia thuiella*).....

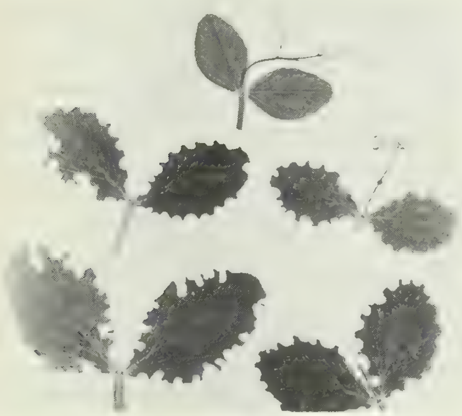
LIGHT TRAP COLLECTIONS

	Pseud. unip.	Laphyg. frug.	Prod. ornith.	Trich. ni	Agrot. ips.	Feltia subter.	Mocis latipes	Helio. zea
FLORIDA								
Gainesville 12/19						1	8	1
Quincy 12/11					1	8	2	1
SOUTH CAROLINA								
Charleston 12/11-17	9	1	2	2	24	48	2	1

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

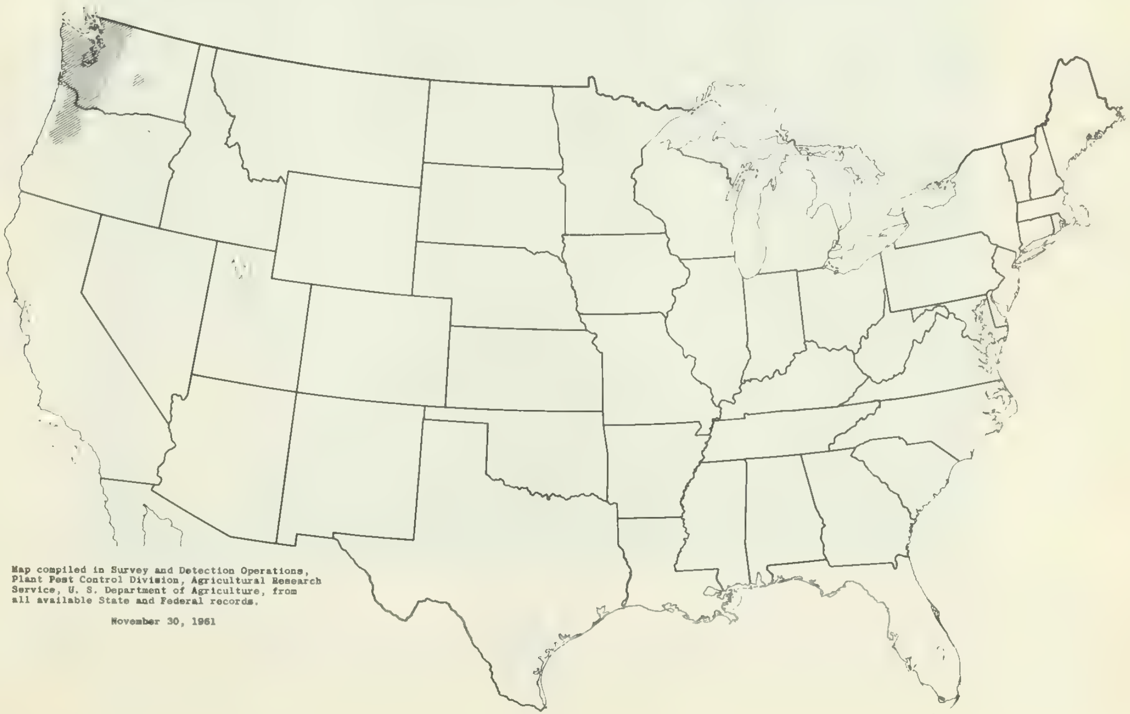
PEA LEAF WEEVIL (*Sitona lineata* (L.))

Economic Importance: This weevil was first found in North America in codling moth traps in southern Vancouver Island, British Columbia, Canada, in the fall of 1936. The following summer it became widespread and abundant in the Victoria district, causing extensive injury to seedling peas. When it was discovered on the neighboring San Juan Islands, State of Washington, in 1940, heavy infestations were reported injuring pea and vetch plantings. Infestations were found on the mainland of Washington in 1942. Since that time, the pest has become established in the Willamette Valley of Oregon. Initial foliar feeding by the adults is characteristically U-shaped notches cut into the margins, creating a scalloped appearance (see illustration). It may progress to severe ragging or defoliation. In the Pacific Northwest, in mid-March to mid-April, seedling hosts may be subjected to severe feeding injury by overwintered adults. The new generation adults which appear in abundance in mid-July have often eaten seedling red clover or alfalfa, planted as a succession crop to peas, to the ground. Newly



Typical Adult Feeding Injury on Pea

DISTRIBUTION OF PEA LEAF WEEVIL (*Sitona lineata* (L.))



Map compiled in Survey and Detection Operations, Plant Pest Control Division, Agricultural Research Service, U. S. Department of Agriculture, from all available State and Federal records.

November 30, 1961

forming buds of birdsfoot trefoil also are subject to attack in July by new adults; severe losses result where this plant is raised primarily for seed. Larval damage to host plants is less obvious. They feed underground on the nitrogen root nodules which they penetrate as newly hatched larvae. As larval feeding continues, discoloration and abnormal appearance of the root nodules is apparent. In the Willamette Valley of Oregon, larvae annually destroy a large proportion of the root nodules in all pea fields, and in many fields, destruction is virtually complete.

Distribution: Occurs throughout Europe (except for the Iberian Peninsula), Morocco, Canada (British Columbia) and the Northwestern United States (see map).

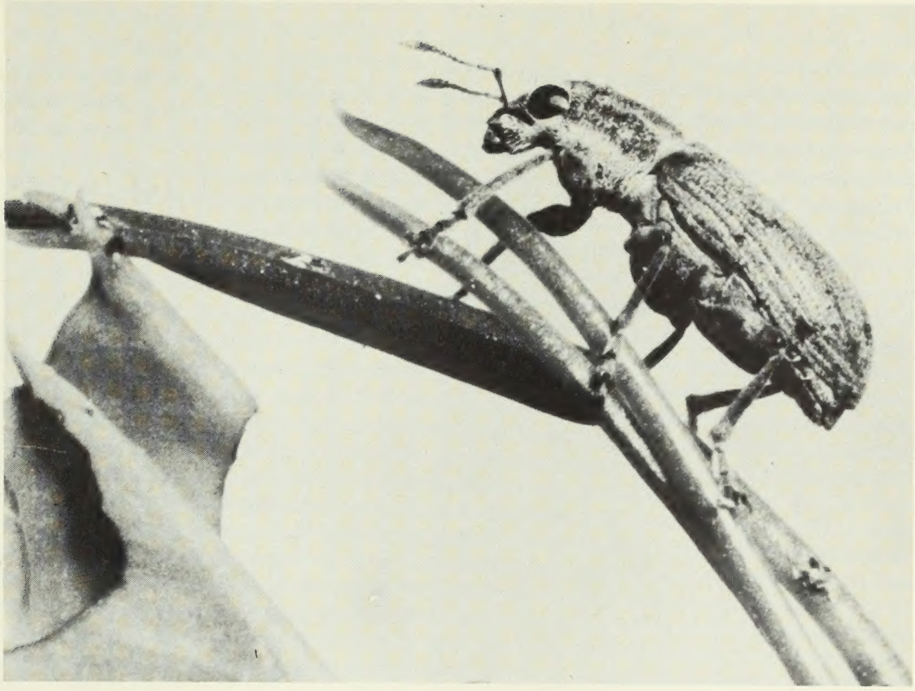
Hosts: Legumes are the major food for the adult and apparently the exclusive food of the larva. Adults have also been reported to attack several nonlegumes such as apple, blackberry, birdsfoot deervetch, prostrate knotweed, raspberry, rose and strawberry. In Europe, adults have been noted feeding on such diverse hosts as beet, broadbean, cauliflower, chicory, locust, sainfoin, Scotchbroom seeds, soybean, white sweetclover and sweetpea as well.

Life History and Habits: The biology as recorded in the Pacific Northwest is as follows: Overwintering adults begin mating as early as January if the winter is mild, but usually do not appear in numbers until about mid-March when host foliage is abundant. Oviposition is greatly accelerated at this time. Eggs are scattered singly, mostly on the soil, but occasionally on the plants. Hatching occurs in about 18 days under optimum conditions. Newly hatched larvae seek the nitrogen-fixing root nodules, consuming the contents and leaving the nodules before pupation. The larval stage normally takes 35 days and pupal period requires about 15 days. Only one generation a year occurs. The egg, larval and pupal stages peak in mid-April, mid-May and mid-June, respectively. New generation adults can be found in abundance from mid-July until they aestivate in late summer. In Oregon, some adult feeding occurs throughout the winter months, but in areas of low winter temperatures such as northern Europe, a true winter hibernation occurs.

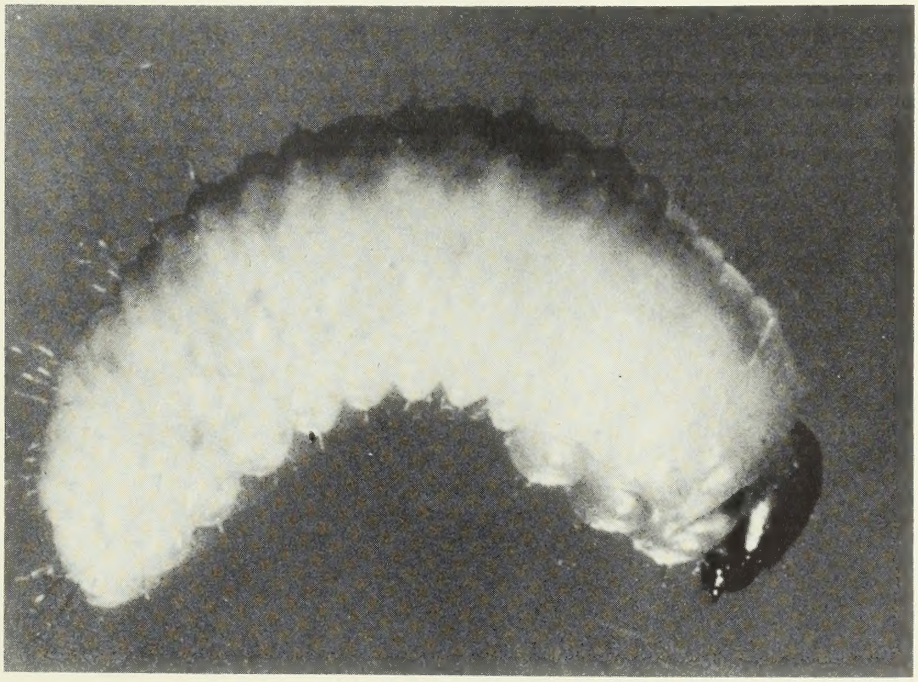
Description: EGG - Oblong oval to round, about 0.36 mm. at greatest diameter; milky white, turning jet black in 24-28 hours. LARVA - Legless, curved, cylindrical, light milky in color, with moderately long setae protruding vertically from dorsum of body segments; 6-7 mm. long when full grown. PUPA - Glistening white throughout when newly formed; eyes turn black and abdomen darkens later. Tubercles which resemble horns and bear setae project from head and thorax. ADULT - Slender, grayish-brown in appearance, 4-5 mm. long. Rostrum with central furrow which continues between eyes; antennae rather long and light brown. Thorax with 3 light lines (one central and 2 lateral) and slightly broader than head. Elytra with parallel alternately light and dark lines and fine, punctured striae; lineations may vary in intensity and be almost absent. Legs rather long, testaceous; femora darker and anterior tibiae curved in the male. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 11(52):12-29-61.

(See illustrations on page 1135)

Major references: 1. Prescott, H. W. and Reeher, M. H. 1961. The Pea Leaf Weevil, an Introduced Pest of Legumes in the Pacific Northwest. U. S. Dept. Agr. Tech. Bul. 1233, 12 pp., illus. 2. Smith, K. M. 1948. A Textbook of Agricultural Entomology. 289 pp., Cambridge.



Adult of Sitona lineata (L.)



Larva of Sitona lineata (L.)

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